

National Defense University Information Resources Management College



Exoskeletons, Robots and System Software: Tools for the Warfighter?

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Emerging technologies such as exoskeletons, robots, drones, and the underlying software are and will change the face of the battlefield. Warfighters will be able to carry more and cover longer distances, but with less effort. Robots and drones greatly decrease exposure to hazardous situations while augmenting human capabilities. Join us for an enlightening session where we expose the power of these technologies in an interactive session and where we think they are headed.

- Robotics is in 2004 at the same place that computers were in 1978. In 1978 computers were expensive, owned by large organizations, notably the military, and performed tedious, routine functions. Since that time computers have become small, inexpensive, commonplace and are used in ways never imaged in 1978.



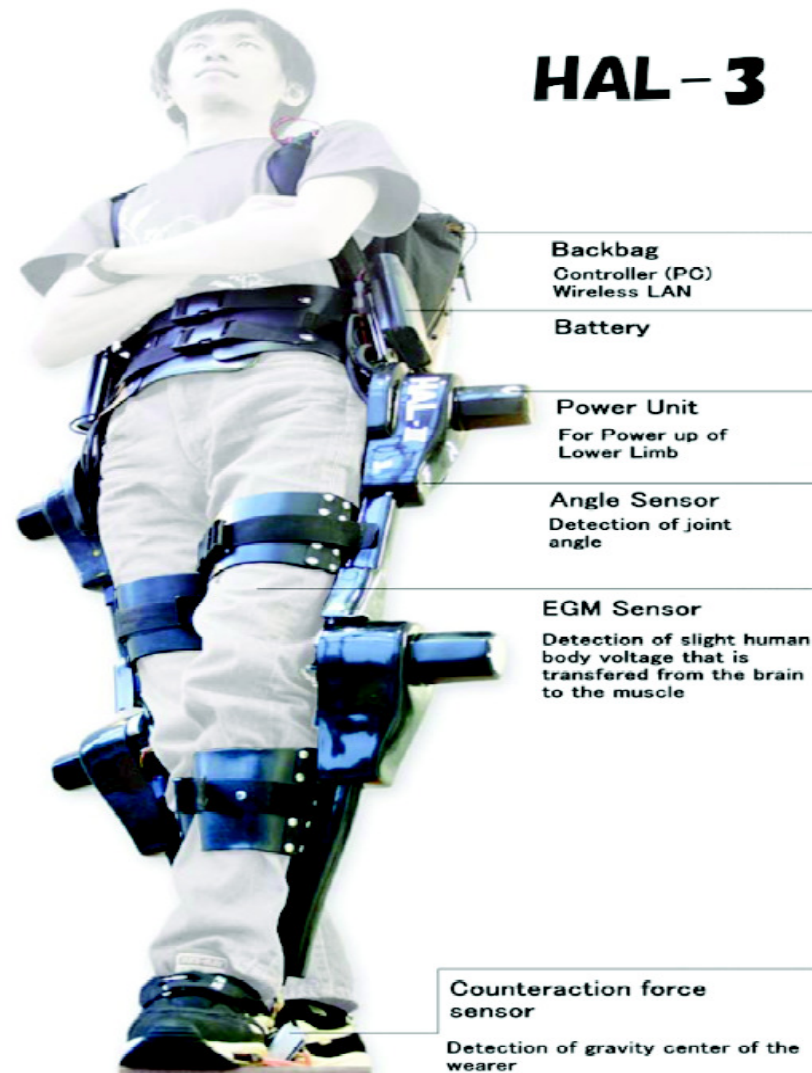
What is an exoskeleton?

An exoskeleton is a wearable robot suit that basically does any lifting for the wearer, enabling him or her to do the work of two or three soldiers.



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Robotic Assisted Humans



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Figure 2: HAL3

Robotic Assisted Humans



Figure 3: HAL5



Figure 4: HAL5 demonstration at EXPO 2005

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- http://www.ted.com/talks/eythor_bender_demos_human_exoskeletons.html



DARPA Challenges

- 2003, 2005, & 2007



<http://link.brightcove.com/services/link/bcpid1374481183/bctid1377895007>

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Google's Robot Car

- <http://www.youtube.com/watch?v=bp9KBrH8H04>



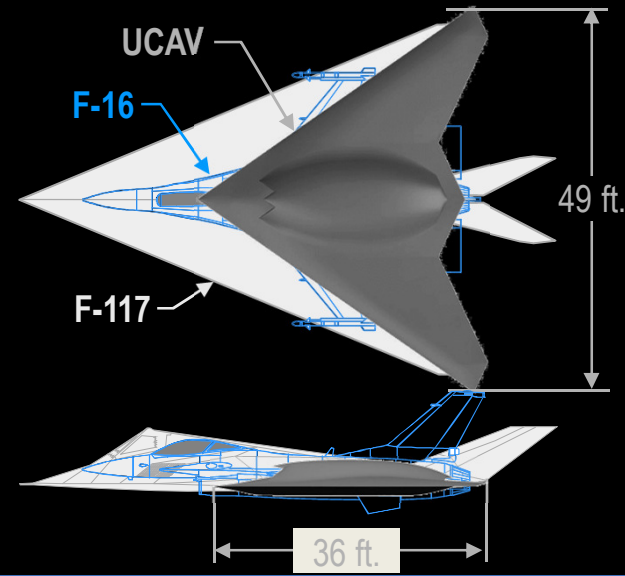
DoD robots in the air 2004?

Features

Air Vehicle

- ~36,500 lb Gross Weight
- ~18,000 lb Empty Weight
- ~0.8 Mach / 40,000 ft altitude
- 1100-1300 nm combat radius

J-UCAV X-45 System



<http://www.airforce-technology.com/projects/x-45-ucav/>
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http://www.time.com/time/specials/packages/article/0,28804,2074830_2080103_2080115,00.html



Air Force special operations forces from the 22nd and 23rd Special Tactics Squadrons prepare to launch a Pointer UAV from the deck of USS Alabama

Questions and Comments



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